New England Deaconess Hospital

pulse

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Diabetes difficult to control in patients with renal failure

Donna Bingham

Seven years ago Donna Bingham received national news media attention when she became the 30th diabetic in the world to receive a kidney transplant.

Today, she is the longest living diabetic survivor of the operation, a great achievement when you consider how experimental the operation was back in 1973 and how difficult it is to control diabetes in a patient with renal failure.

Donna was the second diabetic patient to receive a kidney transplant at the New England Deaconess Hospital through an operation performed by a team of doctors from the Hospital and the Lahey and Joslin Clinics. Her surgeon, Dr. John Libertino, chief of the Lahey Transplant Service, says that he has performed 60 diabetic kidney transplants since 1972 at the Deaconess. About 80-85% of the kidneys given by live donors through this renal transplant program are still functioning normally today, while about 20% transplanted from an unrelated cadaver donor continue to be successful.

"Diabetics are 17 times more likely to die of a kidney disease than the rest of the population," said Dr. Libertino. "Diabetics with renal disease often suffer from other complications affecting the eyes, nervous system and pulmonary and cardiovascular functions. As with other renal failure patients, diabetics must either undergo dialysis or a transplant, but the blood sugars in diabetics are difficult to control on dialysis."

Kidneys are very sensitive organs which function less effectively as we age. Failure of the kidneys can be caused by polycystic disease (hereditary), high blood pressure, chronic kidney infection, poisoning, accidents, or a variety of other diseases. Kidneys maintain the chemical composition of the blood by filtering out waste materials. The organs also control blood pressure and red blood cell production through the hormones they secrete.

When kidneys fail, the blood can become poisoned by its own wastes. The only alternative for renal failure patients is dialysis or a transplant. In hemodialysis, the patient is connected to a dialysis machine by a fistula (an artifical connection surgically implanted between an artery and a vein) which provides access to the bloodstream. Hemodialysis is an exhausting procedure that can take up to five hours, three days a week. The machine cleans impurities from the patients' blood and controls the fluid level in their bodies. But there is no substitute for a real kidney, especially with diabetics who face so many other problems.

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Friends sponsor Ice Chips Night

Dr. Tenley Albright, a U.S. Olympic gold medalist in women's figure skating, is honorary chairman of a committee of the Friends of the New England Deaconess Hospital which is sponsoring opening night of Ice Chips '80, the "Show of Champions."

Organized by the Skating Club of Boston, Ice Chips will premiere at 8 p.m., April 10, in the Walter J. Brown Arena at Boston University. This year's production of Ice Chips features: 1980 Olympic Bronze Medalist Charles Tickner; 1979 World Pair Champions and Olympic competitors Tai Babilonia and Randy Gardner; 1980 Olympic competitors Sheryl Franks and Michael Botticelli; 1980 World competitors Elaine Zayak; and many other New England champions.

Chairman of the opening night performance is Mrs. Lauriston Ward, Jr., member and former president of the Friends of the Deaconess. She points out that Ice Chips is the first major fund raising venture for the Friends in about 20 years. Prices for this event are as follows: sponsors – $50 for 2 tickets ($36 tax deductible); patrons – $25 for 2 tickets ($11 tax deductible); and all other tickets range from $7-10 ($3 tax deductible). For further information, please contact the volunteer office at 732-8044.

Pulmonary tests helpful in diagnosing respiratory defects

A young woman who has smoked two packs of cigarettes a day for ten years complains of difficulty in breathing. Tests in the Deaconess pulmonary function unit indicate that the airflow through her bronchial tubes has decreased. This problem may be alleviated if she stops smoking.

"John Robinson" undergoes a stress/exercise test required by his company in order to determine his eligibility for disability compensation.

An elderly man who has had lung resectional surgery has his remaining lung function evaluated to ascertain the level of P2O2 (partial pressure of oxygen) in his arterial blood. The test is performed while he breathes room air at rest and during exercise. The results suggest that oxygen treatment at home may be a necessary addition to his therapy.

"We've had elderly patients tell us they had been advised to stay home and rest for the remainder of their lives," said Bert Enos, chief pulmonary technician. "But with pulmonary testing and periodic health check-ups, the physician can frequently prescribe medication or oxygen to provide the patient with self-confidence and the ability to lead a more active life."

With the steady rise in pulmonary disease, primarily due to smoking and industrial inhalation hazards, pulmonary function tests have become increasingly useful in the diagnosis of respiratory diseases and in planning pre and postoperative therapy.

In 1972, the pulmonary unit staff examined 544 patients and ran more than 2000 pulmonary function studies. Last year the total number of patients

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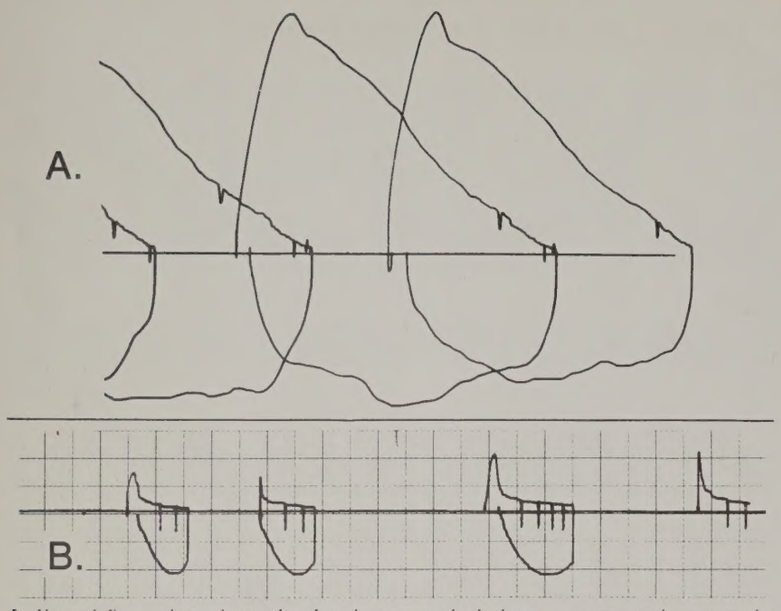
1979 World Pair Champions Tai Babilonia and Randy Gardner Lyra Ward Photo



A. *Normal flow volume loop of a female non-smoker's lungs as measured on a wedge spirometer.* **B.** *Very severe obstructive defect in the lungs of a woman who smoked two packs of cigarettes a day for 30 years.*

Kidney transplant *(continued from page 1)*

"The transplant was the only way out," said Donna. "I could no longer go on the way I was. I could no longer climb more than two or three stairs before giving out, feeling as if I would have a heart attack. My feet were swollen and it was difficult to wear shoes. I could not see well enough to read even a highway billboard. I was constantly nauseated, but mostly I recall having many insulin reactions, one after another."

Donna's mother donated one of her kidney's to Donna after she was carefully tested to determine the tissue compatibility of her kidney. On the average nationally, about 65% of the kidneys transplanted from living relatives are functioning after two years, while 45% of the kidneys taken from unrelated cadaver donors are still working after the same amount of time.

"There are two kinds of drugs used in treating the problem of rejection in kidney transplant patients," said Dr. John D'Elia, renal dialysis specialist at the Joslin Clinic. "One of the drugs, prednisone, causes some complications in diabetics since it raises blood sugar, multiplying the diabetic's insulin requirement two or three times. The other class of drugs are similar to anti-cancer therapeutic agents."

"Both drugs allow infections to come into the system, affecting the already poor circulation in the feet of diabetics, harboring bacteria, in the bladder, etc. These problems must be dealt with postoperatively."

Although Donna did start to reject the kidney after about a week, she managed to retain it through the use of drugs, x-ray therapy and close medical supervision. Even after seven years, the tendency to reject is always there. Donna must take immunosuppressive drugs for the rest of her life. The powerful drugs are used to curtail the body's natural rejection of foreign tissue.

Donna has coped with her disease and transplant by becoming an activist – she testified at a State House hearing in support of printing organ donor information on Massachusetts drivers' licenses; she worked for four years as transplant coordinator for Dr. Libertino; and she served as coordinator of volunteer services for the Kidney Foundation of Massachusetts.

She has lectured and written about her experiences as a kidney transplant patient, and she was named an Outstanding Young Woman of America for 1978.

Donna became an R.N. several years ago, and is currently working towards a degree in psychology. As part of her studies, she is working with children in the Canton public school system who have physical, emotional or developmental handicaps.

She continues to counsel kidney transplant patients. "I feel that there must be a reason for me to do this well. There was no one to help me when I had my transplant, so now I want to provide this psychological support for others. It's important for them to see, feel and touch a person who has gone through the same experience, to realize why we must live careful lives in terms of diet, sports and medication. I take life less for granted now. Sometimes I feel burnt out, but I don't want to waste a minute of my life."

Dietary department holds nutrition week

U.S. Dietary Goals were the theme of the dietary department's celebration of National Nutrition Week, March 24-28, in the employee cafeteria.

During that week, entrees and snacks which illustrated dietary goals concerning low sodium and fat, calories and complex carbohydrates were served.

Staff members were available to answer employees' questions and to hand out pamphlets. Three short films on nutrition were also viewed by employees throughout the week. The activities, which were organized by eight dietetic interns, complemented the ongoing cafeteria nutrition education program.

Pulmonary *(continued from page 1)*

studied rose to 1182 (and 6000 tests) – a reflection of the hospital's heavy involvement in the pulmonary area.

The unit staff includes: Dr. Joseph Andrews, Lahey Clinic and NEDH pulmonary section chief; Bert Enos, chief pulmonary technician; Dianne McElroy, pulmonary technician; Eileen Carnell, pulmonary secretary; six medical technologists from the department of pathology (only one assigned each day); and Drs. Paul Bettencourt and Roy Ruff, NEDH and Lahey fellows. During the year NEDH medical residents also have an opportunity to take a three-week elective in the unit.

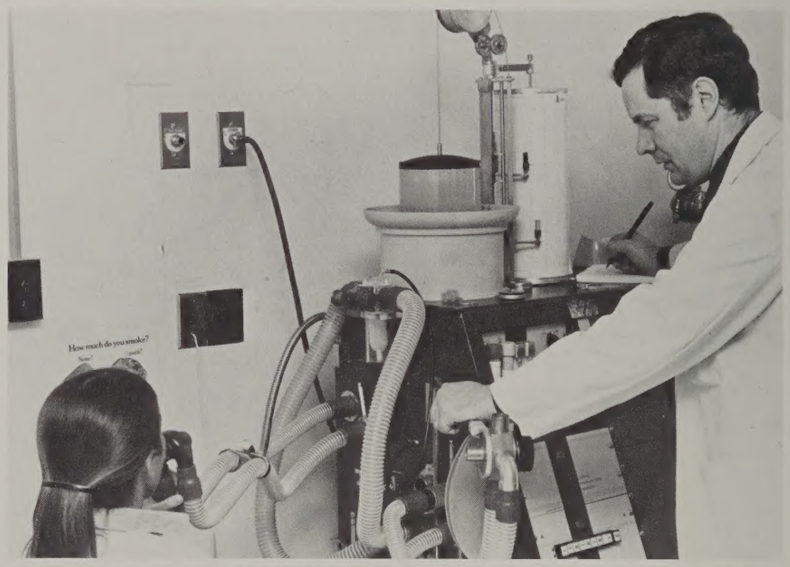
Tests performed establish whether the pulmonary disease is restrictive or obstructive in nature and help to distinguish whether shortness of breath is due to a pulmonary or cardiac condition. Many of the studies can be performed on an outpatient basis.

Among restrictive diseases seen are those associated with obesity, fibrosis or pulmonary edema. Obstructive diseases may be caused by bronchitis, asthma or emphysema. Therapy for the patient is planned using this data.

Lung diffusion studies performed in the pulmonary unit are helpful in detecting early cases of industrial inhalation diseases, such as asbestosis or a chronic disease of unknown cause such as sarcoidosis. The rate of ventilation and air distribution is also monitored by these tests and outlined on a spirometer graph.

A test regularly administered is the arterial blood gas collection. In this procedure a small needle is inserted into the radial artery (located at the wrist) while the patient is lying down. The technician can draw one to three blood gas sources while the patient is resting, exercising and/or receiving oxygen. The levels of oxygen tension, carbon dioxide tension and acidity (ph) of the blood are measured and afford guidance to the physician for patient management.

Anyone wishing to observe a pulmonary test is asked to call the pulmonary unit on Deaconess 2. Arrangements will be made according to availability in the pulmonary schedule. Information on how to exercise your lungs, and on various lung diseases such as emphysema and sarcoidosis, are available in the pulmonary department.



Bert Enos, chief pulmonary technician, monitors one of the studies done to rule out restrictive lung disease.

Public relations emphasizes policy

As it is almost two years since we formalized our public relations policy, we would like to remind all employees and members of the Deaconess staff of the hospital's policy, especially where it pertains to media contacts and patient privacy. Following these basic guidelines will help the Deaconess to be viewed in a consistent and cohesive way:

1. Please refer all media inquiries to the public relations department (ext. 2-8046). This will enable the department to determine the validity of the inquiry as well as avoid conflicting statements on hospital matters.
2. Medical staff members or employees who are contacted by the media for interviews on TV appearances should coordinate such activities through the public relations department.
3. A patient's privacy and the confidentiality of a patient situation must be respected at all times. Nothing is released by the PR department concerning a patient without that patient's prior permission.
4. All publications emanating from the hospital from whatever quarter shall include the name "New England Deaconess Hospital." As a matter of sound public relations, anyone associated with the hospital and producing materials of any form needs to understand the importance of identifying the hospital in all such materials.

We hope this will stimulate all those using the facilities to participate in building the public understanding and recognition of the New England Deaconess Hospital. Copies of any and all materials should be filed with the public relations department in order that a permanent record of everything published will be maintained.

Laboratory technologists: super sleuths of the Deaconess

It's 7 a.m. and Jane Nurmi, a medical technologist from the hematology department is on her way to draw early morning blood samples on Palmer 2. For those of us not really familiar with what medical technologists do, somehow the image of Mrs. Nurmi walking down the corridor with a hand basket filled with test tubes, rubber arm bands, gauze pads and other assorted paraphernalia sticks in our minds and we reach a hasty conclusion.

Cytology technician Teddy Racine scans a slide for tumor cells.

Technologists are blood drawers.

Right?

Yes, but that's only a small part of their greater role as highly skilled medical detectives, super sleuth assistants, if you will, to NEDH physicians in diagnosing their patient's ills. In many cases, the attending physician depends on the battery of information supplied him by the medical technologists in prescribing a suitable course of treatment.

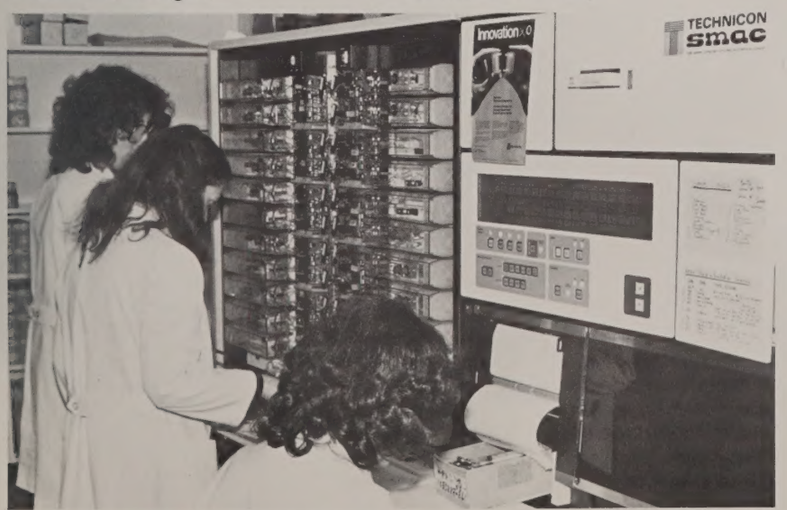
At the Deaconess, the task of gathering this data is performed by a team of 214 technologists in the pathology department under the direction of Merle A. Legg, M.D., chairman, department of pathology. In 1979, NEDH technologists performed over one million lab tests and this number increases annually by an additional 10% according to Joanne Casella, chief medical technologist.

Over the years, the growth in the ranks of technologists at NEDH has generally mirrored the development of the hospital itself. During the last 20 years, in particular, modern medicine's increasing reliance on an arsenal of sophisticated diagnostic laboratory test equipment and procedures has brought with it a compelling need for a cadre of highly trained technologists.

Of the 214 technologists currently working in the various laboratories, better than 70% are four year college graduates with B.S. degrees in Laboratory Medicine. Their course of study also requires completion of at least a year's internship at an accredited hospital and leads to certification by the American Society of Clinical Pathologists. The requirements vary for those of medical technologists, histotechnologists, cytotechnologists, medical laboratory technicians and certified laboratory assistants. Twenty-five co-op college students from such institutions as Northeastern, Dartmouth, Brown and Wesleyan round out the total.

A tour of the labs in the Meissner building usually begins with histology on the first floor. There, histotechnologists prepare slides of any tissue surgically removed as well as of those removed during autopsies. The autopsies are performed by pathologists, and the surgical specimens are examined by pathologists who select tissues for microscopic examination.

Once the selected tissues arrive in histology, technologists place them in a 12-station automatic processor. In the overnight process, the tissues are preserved and dehydrated and finally permeated with paraffin, a supporting substance. Technologists mount the specimen in solid paraffin blocks which then allows them to cut sections of tissue on a microtome to about 1/5,000 of an inch thick. The sections, now mounted on glass slides, pass through a series of solutions to remove the wax and to stain the cells, which otherwise would not be clearly visible. The technologist completes the slide with mounting medium and a coverslip. The pathologists, who are expected to make definitive diagnoses from microscopic study of the slides, depend on the skill of the technologist to properly prepare the tissues for study.



(l-r) Chemistry technologists Carol Sklar, Dorrie Collotta and Cynthia Dellicolli run the new Smac chemistry analyzer which performs 20 tests simultaneously.

Early Deaconess chemistry lab workers about 1920.

Upstairs on Meissner 2, hematology medical technologists study the many factors involved in blood clotting and examine the cellular components of blood samples for indications of disease states. The results of these tests identify such critical information as the reason for bleeding disorders, provide the basis for the diagnosis of different kinds of leukemia or anemia and also may give some indication of the presence of certain kinds of infections. In order to perform these tests both quickly and accurately, hematology technologists must be thoroughly trained in human blood cell and bone marrow cell structure and in medical instrumentation.

Across the corridor the keen eyes of several rows of cytotechnologists peer intently into high powered microscopes. Their job is to search for changes in exfoliated or scraped off tissue cells which either indicate a tendency for the development of cancer or a presence of actual cancer cells. This technique is particularly useful for the discovery of very early cancer of the cervix, or for finding cancer cells of the urinary tract in urine, cancer cells of the lung in the sputum, cancer cells of the stomach in gastric scrapings and so forth. The electron laboratory and the neuropathology laboratory also are on the second floor and are highly technical and specialized laboratories.

On the third floor, microbiology lab technologists search for microscopic culprits, bacteria, parasites, and viruses which causes disease. As one might expect, the identification of these disease-producing organisms involves many different techniques and special training.

Up one flight is the largest lab, chemistry, which performed 500,000 tests last year. Upon entering the chemistry lab one immediately gets a sense of stepping into the future.

A large team of chemistry technologists performs complex chemical analyses using the most sophisticated equipment available today. The centerpiece of this equipment is the new SMAC analyzer which simultaneously performs 20 chemical tests on blood serum. In addition to being a valuable tool in diagnosing disease, these results also provide critical information on the patient during treatment.

Chemistry technologists also perform tests with radioactive material to aid in diagnosing such diseases as hepatitis, anemias and thyroid dysfunction. Many other special tests must be performed either by painstaking manual methods or by using other semi-automated tools.

Clearly, chemistry technologists must be not only expert biochemists but must also understand the mechanical and electronic quirks of their instruments.

John Goss draws a veni-puncture blood sample for analysis back at the labs. Teams of blood drawers make rounds at 7 and 11 a.m. and 3 p.m.

Another element of the laboratory is the blood bank on Deaconess 3. Blood bank technologists collect and test blood donated for transfusions and assure compatibility of the donor blood with that of the recipients. The technologists provide special blood components for treating those patients who lack blood clotting factors including platelets or those who need white blood cells so necessary to fight infection. Sometimes, the blood bank technologists also removes abnormal components as part of treatment. Fifteen to twenty percent of the blood needed for NEDH surgical patients is obtained through the hospital donor program.

The many technologists in the department of pathology provide much of the most scientific data of medicine, information which is essential in the diagnosis and treatment of disease. Good judgment, consistent quality control, accuracy and speed are essential in the technologist's contribution to medicine.

66 Employees honored with service award pins

Ten year recipients: *Back row (l-r): Gordon Slocum, surgical services; Richard Naliwaika, building services; Sante Breda, service coordination; John Dolan, building services. Front row (l-r): Rose Clermy, dietary; Sara McLean, nursing.*

President Laurens MacLure presented service award pins to 66 employees during a coffee hour on February 8. **Twenty five year recipients** *were Ralph DeBernardo (1), laboratories, and Lemuel Jones, building services.*

Twenty year recipients: *(l-r) Norman Richard, nursing; David Colleran, mail room; and M. June Forbes, engineering and maintenance.*

Fifteen year recipients: *(l-r) Everena Vose, diagnostic radiology; Adeline Green, laboratories; Roger Peterson, laundry: Francena Holder, nursing; and George Muncey, surgical services.*

NEDH installs automatic teller

An automatic teller will be in operation at the Deaconess on or about April 15 for the convenience of employees who have an account at the Boston Five Cents Savings Bank and own a Twenty-Four Hour Teller Card. These employees will have access to the automatic teller 24 hours a day, 7 days a week. The teller will be located in the Baker basement, adjacent to the cafeteria.

This service should diminish the problems which might otherwise occur due to the discontinuation, on or about April 15, of personal check cashing by the cashier's office (including employee, medical staff and student checks). New hours for the cashier's office will be from 8:30 a.m. to 1:00 p.m., Monday-Friday. These changes will enhance cost savings by reducing the hours of operation.

Another option will be available to employees not having a Boston Five checking account who wish to cash personal checks. That is, checks up to $50 may be cashed at the Boston Five Brookline Avenue branch during regular banking hours by showing your Deaconess identification badge. There will be a 25¢ charge for each check. This service will begin about April 15 to coincide with the change in policy and hours at the hospital cashier's office.

Employees who requested a Twenty-Four Hour Teller Card prior to March 10 should have the cards in their possession by April 1. On or about April 1, a bank representative will be available to the hospital for a minimum of one week to validate cards and to demonstrate how the automatic teller operates. In order to have the card validated, employees must have their hospital identification badge with them. After the bank representative completes the orientation sessions, cards can be validated at the Boston Five Cent Savings Bank, Brookline Avenue branch.

Five year recipients: *Back row (l-r): Robert Kardonsky, engineering and maintenance; Charles Kessler, religious services; Theodora Racine, laboratories. Middle row: Donald Smith, Shields Warren Research Laboratories; Eileen Fink, service coordination. Front row (l-r): Bobbie Sales Enaibe, laboratories; Ivy Seaton, building services; and Mary Freedman, dietary.*

pulse

The New England Deaconess Hospital is a 489-bed and 14-building complex. Physicians from the Joslin Clinic, the Lahey Clinic, Overholt Thoracic Clinic and the general medical and surgical staffs serve the needs of their patients at the hospital. The Deaconess is internationally known for diagnosis, treatment and research in brain and chest surgery, cancer, diabetes and general medicine, and is affiliated with Harvard Medical School.

PULSE is published monthly by the public relations department of the New England Deaconess Hospital.

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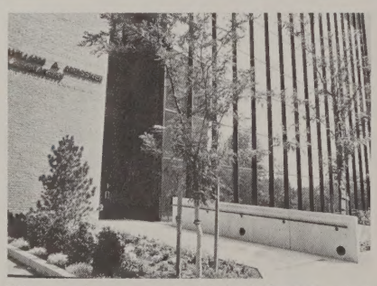

What work goes on in this building? See Lab Technologists p. 3

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